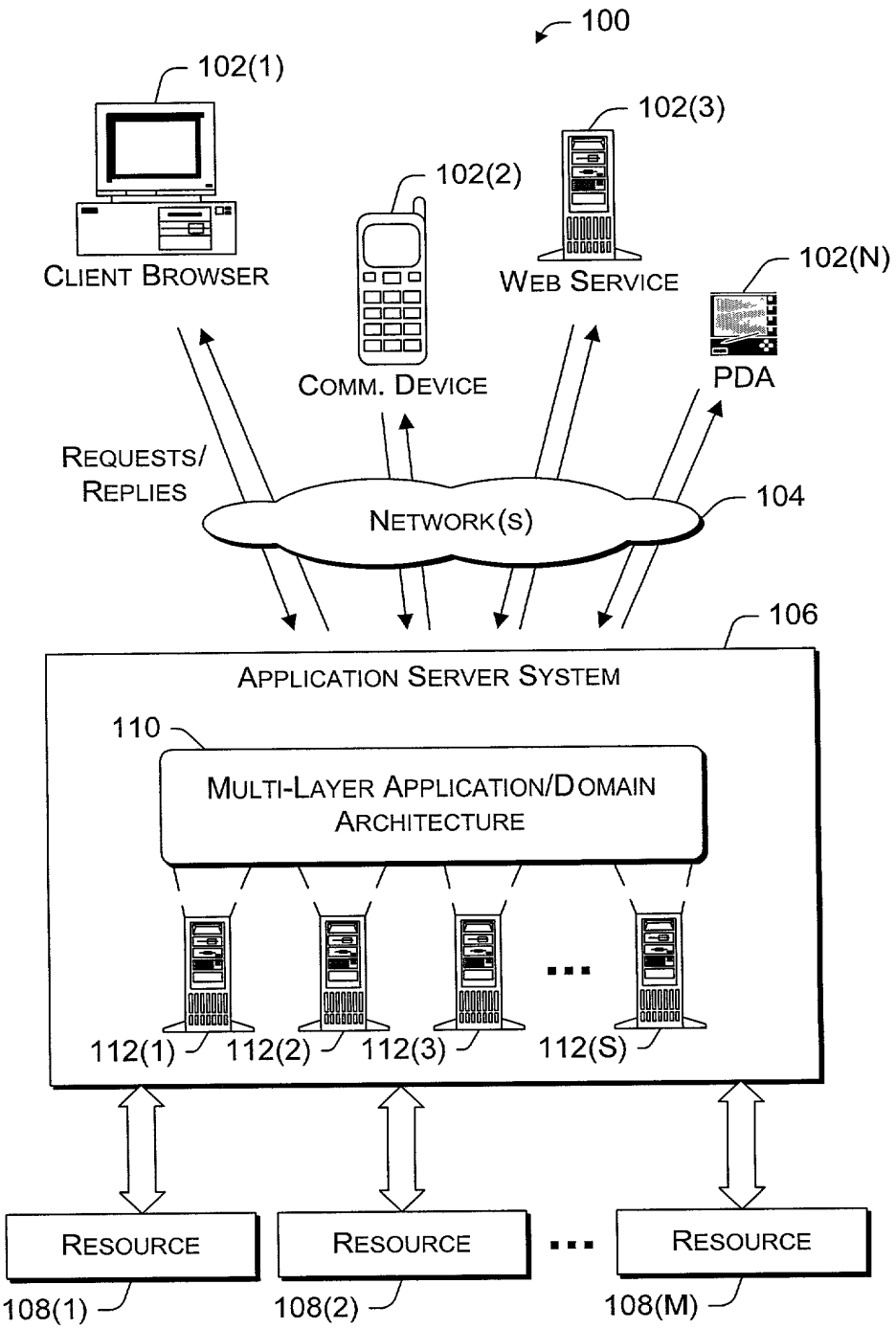

100
102(1)
102(3)
102(2)
102(N)
CLIENT BROWSER
WEB SERVICE
COMM. DEVICE
PDA
REQUESTS/
REPLIES
NETWORK(S)
104
106
APPLICATION SERVER SYSTEM
110
MULTI-LAYER APPLICATION/DOMAIN
ARCHITECTURE
112(1)
112(2)
112(3)
112(S)
RESOURCE
RESOURCE
RESOURCE
108(1)
108(2)
108(M)

Fig. 1

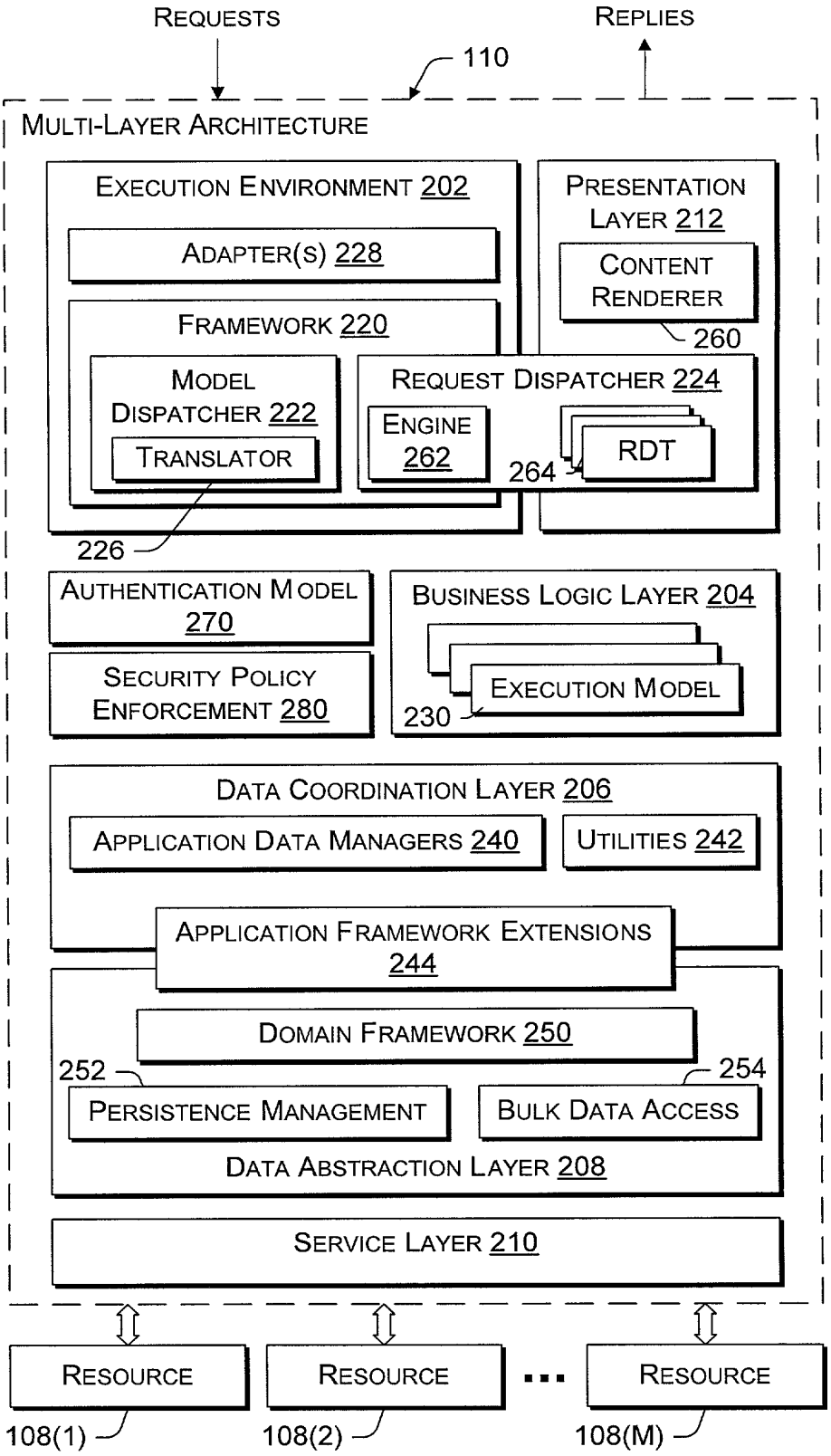

REQUESTS
REPLIES
110
MULTI-LAYER ARCHITECTURE
EXECUTION ENVIRONMENT 202
ADAPTER(S) 228
FRAMEWORK 220
MODEL DISPATCHER 222
TRANSLATOR
226
REQUEST DISPATCHER 224
ENGINE 262
RDT
264
PRESENTATION LAYER 212
CONTENT RENDERER
260
AUTHENTICATION MODEL 270
SECURITY POLICY ENFORCEMENT 280
BUSINESS LOGIC LAYER 204
EXECUTION MODEL
230
DATA COORDINATION LAYER 206
APPLICATION DATA MANAGERS 240
UTILITIES 242
APPLICATION FRAMEWORK EXTENSIONS 244
DOMAIN FRAMEWORK 250
252
254
PERSISTENCE MANAGEMENT
BULK DATA ACCESS
DATA ABSTRACTION LAYER 208
SERVICE LAYER 210
RESOURCE
RESOURCE
RESOURCE
108(1)
108(2)
108(M)

Fig. 2

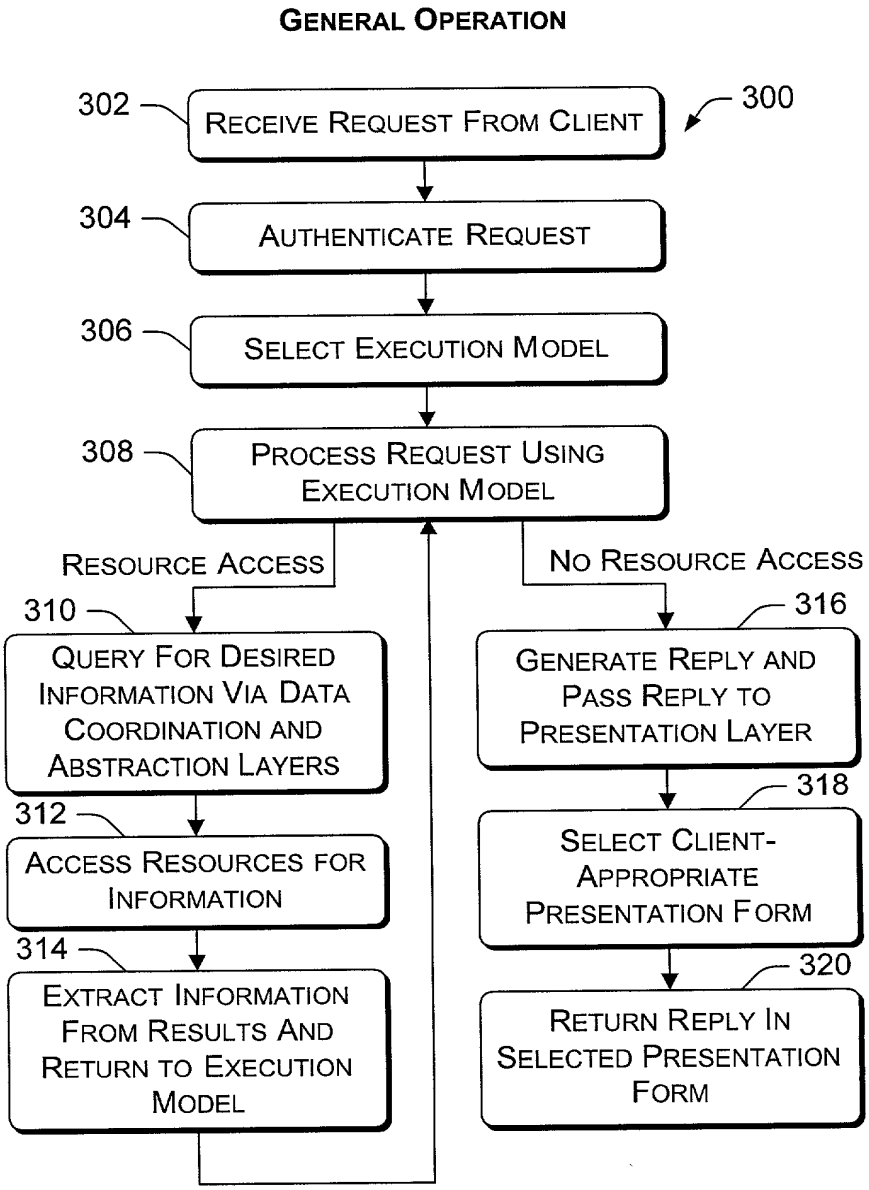
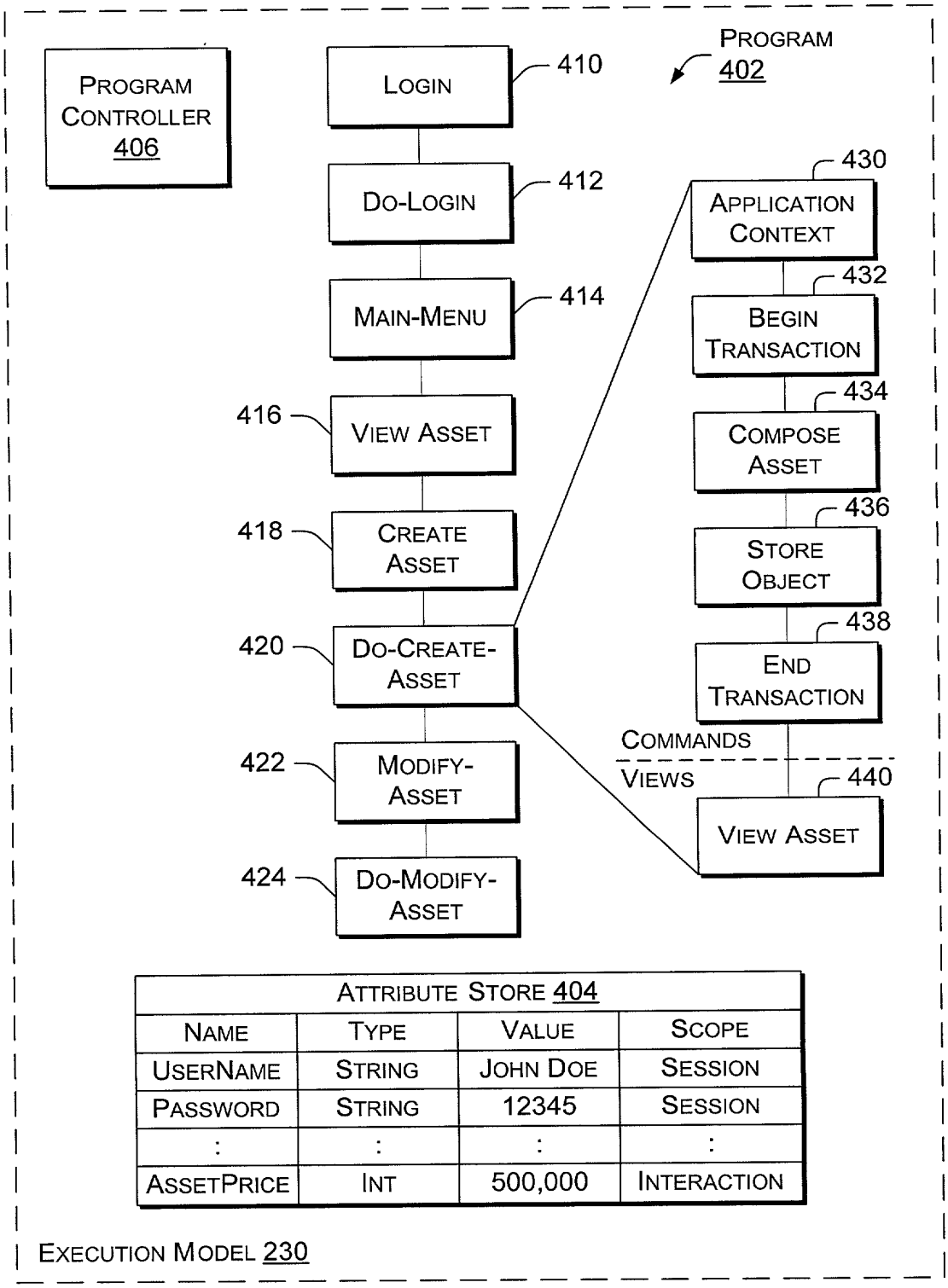

GENERAL OPERATION
302
RECEIVE REQUEST FROM CLIENT
300
304
AUTHENTICATE REQUEST
306
SELECT EXECUTION MODEL
308
PROCESS REQUEST USING EXECUTION MODEL
RESOURCE ACCESS
NO RESOURCE ACCESS
310
QUERY FOR DESIRED INFORMATION VIA DATA COORDINATION AND ABSTRACTION LAYERS
312
ACCESS RESOURCES FOR INFORMATION
314
EXTRACT INFORMATION FROM RESULTS AND RETURN TO EXECUTION MODEL
316
GENERATE REPLY AND PASS REPLY TO PRESENTATION LAYER
318
SELECT CLIENT-APPROPRIATE PRESENTATION FORM
320
RETURN REPLY IN SELECTED PRESENTATION FORM

Fig. 3



ATTRIBUTE STORE 404

NAME	TYPE	VALUE	SCOPE
USERNAME	STRING	JOHN DOE	SESSION
PASSWORD	STRING	12345	SESSION
:	:	:	:
ASSETPRICE	INT	500,000	INTERACTION

Fig. 4

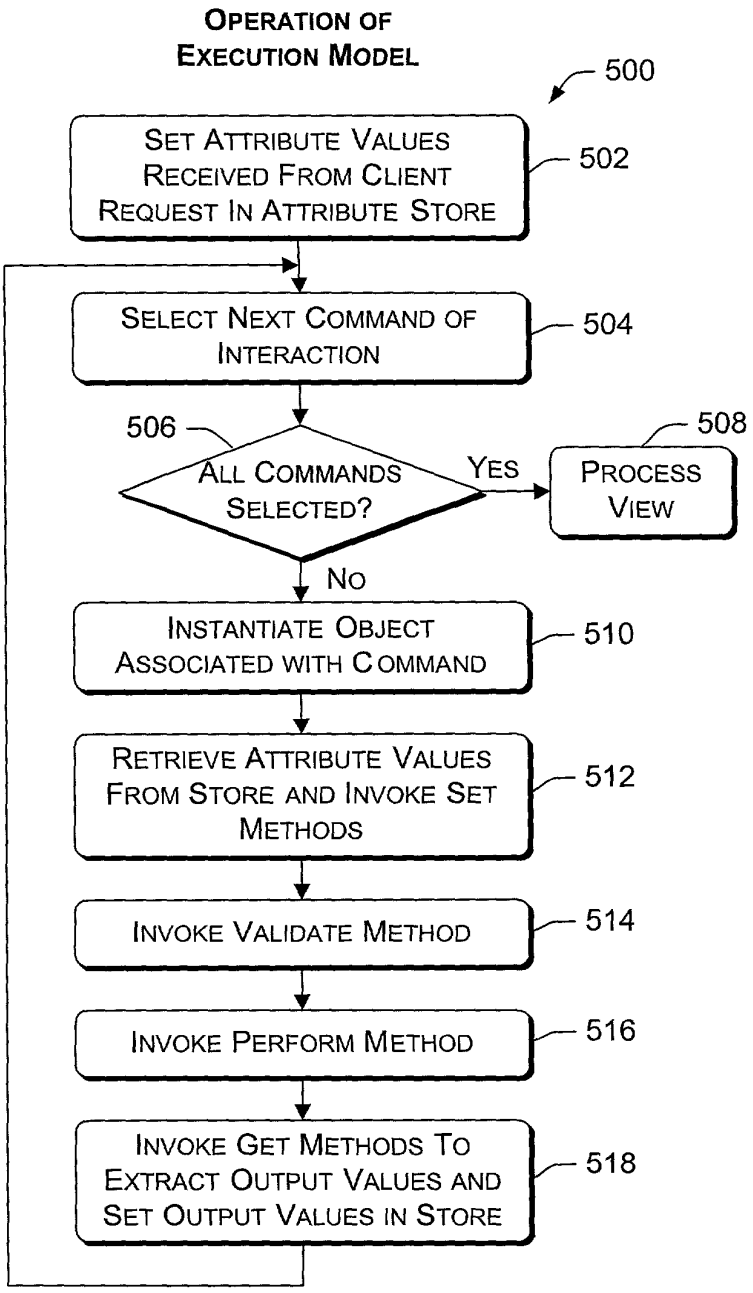

OPERATION OF EXECUTION MODEL
500
SET ATTRIBUTE VALUES RECEIVED FROM CLIENT REQUEST IN ATTRIBUTE STORE
502
SELECT NEXT COMMAND OF INTERACTION
504
506
ALL COMMANDS SELECTED?
YES
508
PROCESS VIEW
NO
INSTANTIATE OBJECT ASSOCIATED WITH COMMAND
510
RETRIEVE ATTRIBUTE VALUES FROM STORE AND INVOKE SET METHODS
512
INVOKE VALIDATE METHOD
514
INVOKE PERFORM METHOD
516
INVOKE GET METHODS TO EXTRACT OUTPUT VALUES AND SET OUTPUT VALUES IN STORE
518

Fig. 5

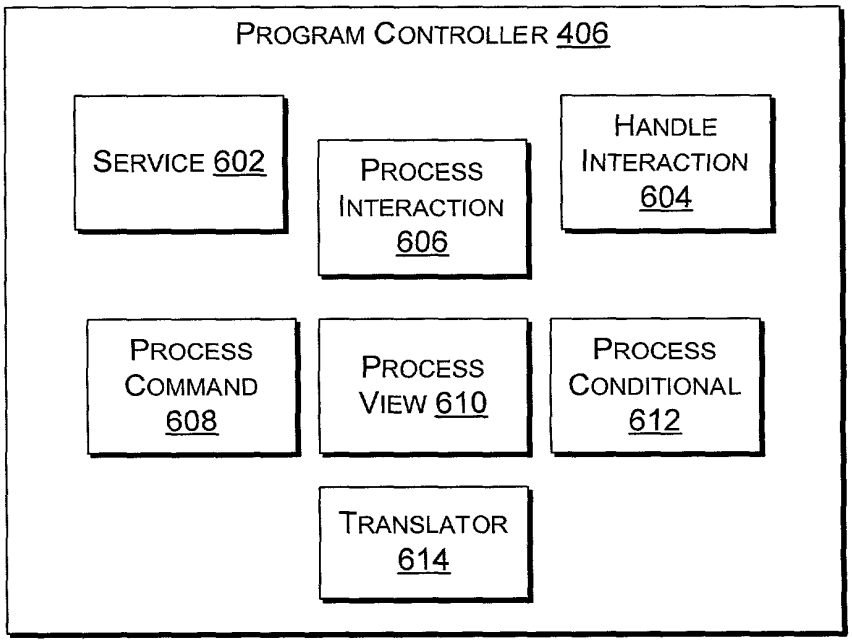

PROGRAM CONTROLLER 406
SERVICE 602
PROCESS INTERACTION 606
HANDLE INTERACTION 604
PROCESS COMMAND 608
PROCESS VIEW 610
PROCESS CONDITIONAL 612
TRANSLATOR 614

Fig. 6

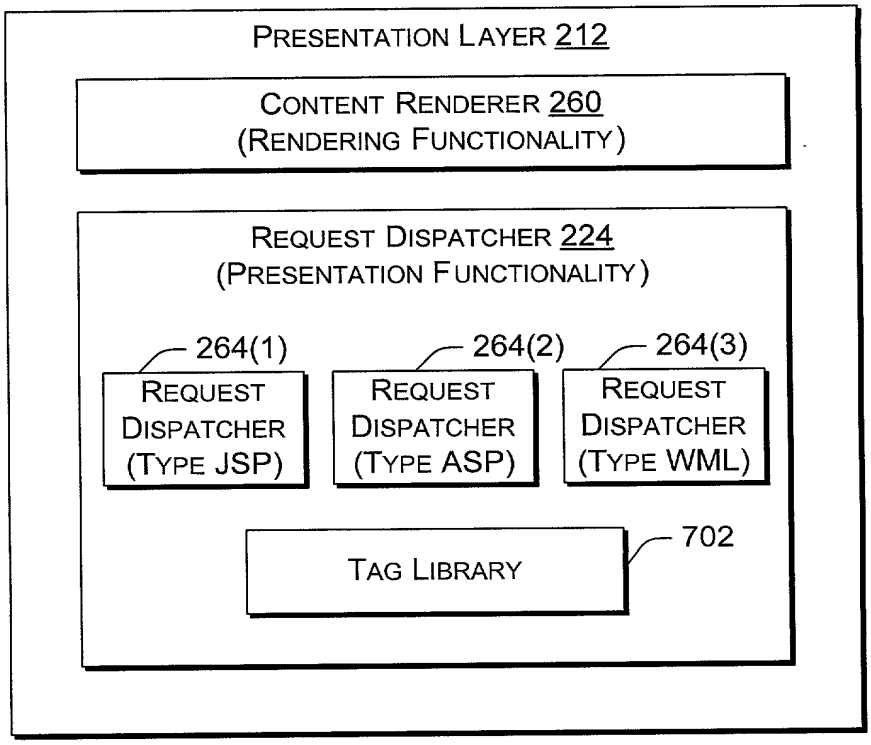

PRESENTATION LAYER 212
CONTENT RENDERER 260
(RENDERING FUNCTIONALITY)
REQUEST DISPATCHER 224
(PRESENTATION FUNCTIONALITY)
264(1)
REQUEST DISPATCHER (TYPE JSP)
264(2)
REQUEST DISPATCHER (TYPE ASP)
264(3)
REQUEST DISPATCHER (TYPE WML)
TAG LIBRARY
702

Fig. 7

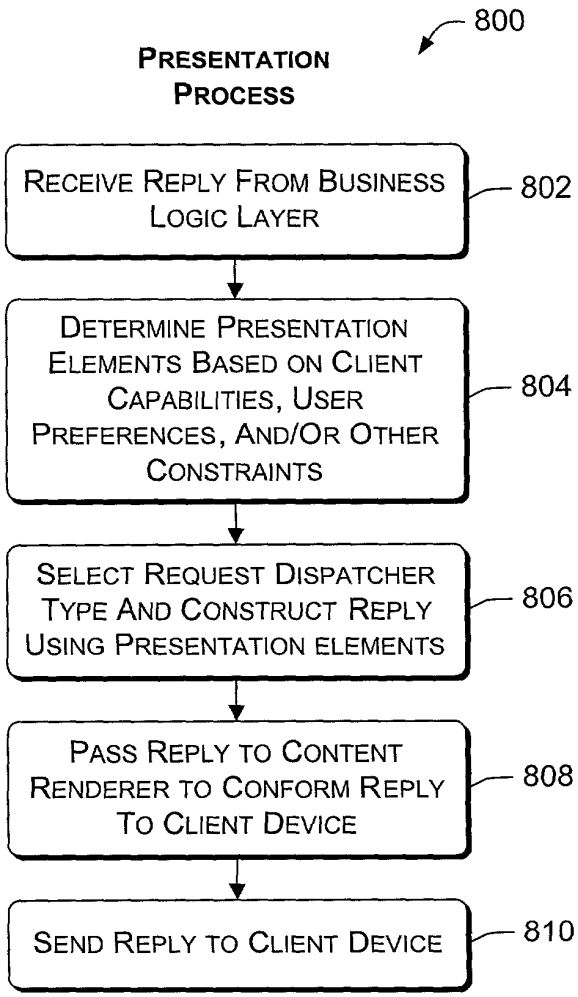

800
PRESENTATION PROCESS
RECEIVE REPLY FROM BUSINESS LOGIC LAYER
802
DETERMINE PRESENTATION ELEMENTS BASED ON CLIENT CAPABILITIES, USER PREFERENCES, AND/OR OTHER CONSTRAINTS
804
SELECT REQUEST DISPATCHER TYPE AND CONSTRUCT REPLY USING PRESENTATION ELEMENTS
806
PASS REPLY TO CONTENT RENDERER TO CONFORM REPLY TO CLIENT DEVICE
808
SEND REPLY TO CLIENT DEVICE
810

Fig. 8